Overlooked uncertainties...

Victor, Isabelle, and more?

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Outline

Introduction

1. the baby: with climate change, we need to safeguard and adapt forests, as they play a major role in mitigating its effects

2. the werewolf: We have many models, we don't know which one is the best. Most decisions rely on limited models without much insight into what drives differences in projections. This can mask significant uncertainties and ultimately threaten the success of forest management decisions

3. the silver bullet: accept a greater diversity of models (scientific approaches, hypothesis), and figure out how to safeguard forests by gaining a better understanding of uncertainties, i.e., merging across biological and climatological components (uncertainty budget framework)

Results, discussion

1. models, methodology = significant and often overlooked source of uncertainty, even greater than variability of different climate projections

2. which implications in terms of forest management?

   (a) on average, uncertain projections = more possibilities to act? more adaptation measures

   (b) but high uncertainties may lead to *laissez-faire*

   (c) we want to avoid that, how to translate uncertainties into decision-making?
   $\rightarrow$ favor forest adaptation strategies resilient to a wide range of possible future conditions.

   (d) forest managers, policy makers:
   rethink the way species distribution modeling is applied to forest management

3. looking ahead: a call to action for the scientific community:

   (a) substantial progress required to develop more reliable projections

   (b) proper evaluation of the transferability?

   (c) integration of fewer, but more robust models that incorporate mechanistic understanding? simple models can also be great!

   (d) going further into uncertainty evaluation? (parameter uncertainty is totally ignored in process-explicit models...) $\rightarrow$ us, as scientists, we need to expose these uncertainties if we want forest managers to tackle them (transparency), i.e; build on similar framework to actually guide adaptation